



INDIAN CALENDAR SYSTEM IN ISLAMIC ASTRONOMY PERSPECTIVE

Muhammad Atho'ur Rohman 1

¹Sunan Ampel State Islamic University Surabaya (05010620008@student.uinsby.ac.id)

Abstract: The Indian calendar or the Indian calendar system is a unique calendar. This is because many regions have their own version of the calendar. The Indian calendar uses two calendar systems in general, namely according to solar calculations and according to solar lunar calculations. This paper discusses the Indian calendar system in the perspective of Islamic astronomy. The method used in this research is library research (*library research*). In the perspective of Islamic astronomy, the Indian calendar is not very suitable because it does not use calculations according to the movement of the moon. The Saka Bali calendar is one of the calendars whose calculations are close to the Hijri calendar or Islamic astronomy because it uses calculations for the movement of the moon and the sun.

Keywords: Indian Calendar; Islamic Astronomy; Saka Calendar.

1. INTRODUCTION

The life of living things is very dependent on time, including humans themselves who were created by Allah SWT. as the most perfect creature on this earth. Then in order to make it easier for humans to think of making a time marking system called a calendar. The calendar itself is a system consisting of units of time as a marker for calculating time in the long term (Saifullah and Sukma, 2022, p. 28). The calendar has the equivalent term, namely the almanac. Almanacs are used as guidelines for time planning in tabular form and corrections in agriculture, economics, and religion (Soderi, 2018, p. 242). With a calendar, humans can easily plan when to start planting, when to sell in the market, when to pray, and many other activities (Azhari, 2008, p. 115).

There are three calendar systems in use today in the world, namely the solar (solar) calendar system, lunar (lunar) calendar system, and solar (lunisolar) calendar system. The solar calendar is a calendar whose calendar calculations are based on the earth's revolution around the sun, one year has a total of 365 days plus a quarter of days every year. A lunar calendar is a calendar whose calendar calculations are based on the revolution of the moon on the earth, which takes a year to calculate 354 11/30 days (Mukarrom, 2017, p. 113). While the solar lunar calendar is a calendar system that uses the time the moon revolves around the earth for one month,

Until now, the calendar that is widely used by most people on earth is the Gregorian calendar, which is calculated based on the earth's revolution around the sun. Meanwhile, the lunar calendar itself, which is commonly called the Hijri calendar, is only used by Islamic countries. Indonesia, where the majority of the population is Muslim, still uses the Gregorian calendar in state administration (Izzudin, 2007, 56). The same thing also happens in parts of countries that already have their own calendars such as India. The Indian calendar is only used in religious events in the country, it is not comprehensive in the joints of life in state administration using the Gregorian calendar (Saifullah and Sukma, 2022, p. 29). The Indian calendar itself existed before the Gregorian calendar. The Indian calendar is unique in that it has several versions in each region of India. There are those who use sun and moon and sun calculations. Therefore, this journal will discuss the Indian calendar system in the perspective of Islamic astronomy.

2. METHOD

Research in this journal is library research. Data sources were obtained from books and journals that discussed the Indian calendar. The data was then collected and systematically systematized the Indian calendar in the perspective of Islamic astronomy.

3. ANALYSIS OF STUDY FINDINGS

3.1 Islamic Astronomy in Indian Civilization

The science of astronomy that developed in India is related to religion as in other countries. Several texts by Indian scientists became one of the works that added to Islamic



astronomical civilization. The text is among the first Al-Arjabhar by Aryabhata, the second Zij al-Arkand by Brahmagupta, the third Zij as-Sindhind which can still be used for study by Muslim scientists because the two books mentioned earlier are hard to find.

According to al-Qifthy, Indian astronomical texts reached Islamic civilization in 156 H/773 AD brought by envoys from India to Baghdad and met the caliph carrying astronomical texts in Sanskrit Siddhanta (Arabic: Sindhind). The visit of the Indian envoy is an introduction to the Arab heritage of India as well as marking a turning point in the history of Arab intellectuals. According to al-Qifthy's statement again, the Sindhind text in general contains calculations for the motion of the stars, calculations for eclipses, calculations for the positions of the constellations (mathali' al-buruj) and other calculations which are entirely contained in several chapters. In Sanskrit, Siddhanta or Sindhind means knowledge, knowledge and sect. While terminologically it means books on astronomy and calculations of the motions of all the planets and/or stars.

Brahmasphutasiddhanta is the original title of Sindhind in Sanskrit, a revised version of the astronomy book attributed to Brahma. The Arab writers omitted several words from this title and left Siddhanta, then modified it slightly by adding the word hind (India) at the end to make it as-Sindhind. Some contemporary circles call this book "as-Sindhind al-Kabir" to distinguish it from al-Khwarizmi's as-Sindhind.

The growing observation of the Indian astronomical system was primarily aimed at calculating heavenly bodies, not actually providing a theoretical model. But this system remained within a practical utilitarian framework which led astrology to produce more methods and theoretical frameworks for reducing astronomical phenomena. From this it can be concluded that the tendency of Indian astronomy with arithmetic patterns of celestial bodies has developed in Islamic civilization since the beginning of its existence which did not provide a theoretical framework, but certainly had a major role in formulating theoretical experimental models of astronomy (Arabic Islamic Astronomy in Indian Civilization, 2022).

3.2 Indian Calendar System

The calendar system in India is unique in that it has various variations in each of its regions. This variation arises due to long cultural influences. India uses two calendars namely Solar and Luni-Solar. The modern Indian calendar used today is astronomical because there is alignment with astronomical events such as the pattern of the sun's passage through the ecliptic and solar conjunctions (Lian, 2001, p. 17). According to Prabhakar Vyankatesh Holay in his phenomenal work *Vedaanga Jyotisha*, there are four calendar eras in India, namely (Holay, 1989, p. 122):

1. Kaliyuga calendar

This period was the beginning of a more advanced Indian civilization marked by several events, such as (Mishra, nd, p. 72):

- a. Mahabharata war events
- b. The coronation of king Yudhisthira
- c. Coronation of king Parikshita
- d. Disappearance of Lord Krishna

The Kaliyuga calendar is calculated based on the sidereal motion of the sun. A famous astronomer named Āryabhata mentions that the Kaliyuga calendar starts six days after the departure of Lord Krishna. Precisely on February 20, 3102 BC. However, this opinion cannot be accepted by the traditions of society. The opinion that is traditionally accepted is that the 52nd century kaliyugābda was on April 15, 1999 AD, so today, 2022, we are in the year 5123 of the Kaliyuga calendar (Saifullah and Sukma, 2022, p. 31)

2. Saptarshi Vatsara Calendar

Saptharishis is a group of seven brightest stars in the constellation Ursa Mayor (The Big Bear). 14 Based on the findings of astronomers from ancient Greece, there is a difference in a certain time span between the existence of the tropical zodiac and the Saptarshi calendar (Ursa Major) which uses the moon as its calculation. The saptarshis calendar is no longer in use, this is because every 100 years there is a shift of the lunar mansion by 1°.

3. Vikrama Samvat Calendar



The Vikrama samvat calendar is simply a change of name to the calendar started in 57 BC by king Vikramasitya. The king considered that he had overthrown the tyranny of the old king so a new calendar was made to commemorate him starting from the Shukla paksha of the month of Chaitra. Vikrama is no longer used by Indian society for civil activities, but is still used for worship celebrations.

4. Saka Calendar

The Saka calendar or in full is Shalivahana Shaka Calendar is the national calendar which is still used with the Gregorian calendar in India. As used by The Gazette of India, which is the official news publication media issued by the Indian government. The Saka calendar is also used by Hindus in Java and Bali, for example, the Nyepi celebration to commemorate the new Saka year in Bali. The Nepalese Sambat calendar in Nepal is also a modification of the saka calendar. Apart from that, several areas of the Philippines also used the pre-colonial Saka calendar as written in the Laguna Copperplate inscription. The Saka calendar in India has many different versions in each region. There are at least four streams that use the Saka calendar with their respective versions (Aslaksen, nd, p. 2):

- a. Orissa Calendar
- b. Tamil Calendar
- c. Malyali Calendar
- d. Bengal Calendar

4. CONCLUSION

The Indian calendar has many versions in different parts of India. Broadly speaking, the calendar or calendar system in India is divided into two categories, namely the solar calendar and the solar lunar calendar. One example of a calendar that uses solar month calculations is the Balinese Saka calendar. While the calendar that is widely used is the Sayana Year which is based on solar calculations. This calendar is commonly used in newspapers or official mass media in India. However, the Gregorian calendar is still used during religious administration in India.

BIBLIOGRAPHY

- Azhari, Susiknan. *Ensiklopedia Hisab Rukyat*. Yogyakarta: Pustaka Pelajar. 2008.
- Holay, Prabhakar Vyankatseh. *Vedaanga Jyotisha*. Nagpur: Shri Babasaheb Apte Smarak Samitee. 1989.
- Izzudin, Ahmad. *Fiqh Hisab Rukyah Menyatukan NU Dan Muhammadiyah Dalam Penentuan Awal Ramadhan, Idul Fitri, Dan Idul Adha*. Jakarta: Erlangga. 2007.
- Lian, Leow Choon. *Indian Calendars*. National University of Singapore, 2001.
- Mishra, Vinod K. *The Calendars of India*. New York: Cornell University.
- Mukarram, Akh. *Ilmu Falak Dasar-Dasar Hisab Praktis*. Sidoarjo: Grafika Media. 2017.
- National University of Singapore H, Aslaksen (Departemen of Physics, Faculty Science and Singapore 117546) "10 Kent Ridge Road, Indian Calendars," (Singapore, n.d.).
- Saifullah, Najmuddin dan Mega Sukma, "Sistem Penanggalan India," *Al-Marshad: Jurnal Astronomil dan Ilmu-ilmu Berkaitan*, 8, no.1 (2022).
- Soderi, Ridho Kimura. "Penanggalan Mesir Kuno," *Al-Marshad: Jurnal Astronomil dan Ilmu-ilmu Berkaitan* 4, no.2 (2018).
- <https://oif.umsu.ac.id/2021/02/astronomi-islam-di-peradaban-india/>, Astronomi Islam di Peradaban India, diakses pukul 19:42, 09 Juli 2022.